watch has been kept with the 8″ refractor. Our scrutiny assumes the satellites (if they exist) to be very faint objects, and we are obliged to eclipse *Mars* itself to enable us to take our search close to his limb.

Extract from a Letter from R. J. Ellery, Esq., to the Astronomer Royal, dated Observatory, 1877, October 31.

My Dear Sir George,—We continued our search for *Mars'* satellites up to the 27th instant, but, with the exception of one occasion, upon which *we believe* we saw one of them, our search has been fruitless. The occasion referred to was on the night of the 16th October, when *Mars* occulted a star of about the 13th magnitude at $22^h\ 15^m$ (Sid. Time); after emergence a very faint point (20th magnitude estimated) was seen half a diameter from *Mars* s.p.; this was watched for nearly an hour, when its position indicated a motion with *Mars*, but before any verifying measures could be made the sky became cloudy, and no other signs of satellites have been observed since. Our first search with the great telescope was on the 26th September, and it is very probable our want of success is due to our lateness in the field.

We have obtained a fine series of observations for the parallax of *Mars* with our Transit Circle.

The Opposition of Mars, 1877. By Maxwell Hall, Esq.

(*Abstract.*)

Observations of *Mars* were made in Jamaica during the last opposition of the planet, in order to determine the Solar Parallax by means of the displacement of the planet in Right Ascension, when far east and far west of the meridian as seen at a single place.

The small Observatory is situate about $5\frac{3}{4}$ miles south-east of Montego Bay, on a range of hills 1800 feet above the sea-level. The buildings consist of a square Transit-room and a circular tower for the Equatoreal. The piers of the instruments are founded on solid rock, and the whole of the mason-work is compact and substantial.

The instruments were made by Messrs. Cooke & Sons, of York, and the mounting of the Equatoreal is very firm and massive. The aperture of the object-glass is only 4 inches, but the definition is very good. The transit eye-piece has five wires about 2′ 45″ apart, and a power of 120 was employed. The Transit Instrument has an aperture of 3 inches. The clock is provided with a mercurial compensating pendulum and the dead-beat escapement; it was an inexpensive instrument (cost-

ing only £35), being in fact chiefly intended for adjusting the Equatoreal. The daily change of rate was generally small, $0^{s}\cdot5$ or thereabouts, but there was great irregularity of rate: for instance, an interval of 120 seconds between two stars is generally measured by $119^{sec}\cdot9$ and $120^{sec}\cdot1$ alternately; but often there is far greater irregularity, and differences of $0^{sec}\cdot2$, $0^{sec}\cdot3$, and $0^{sec}\cdot4$ occur between consecutive measures of such an interval.

The observations were commenced on the 4th of August, and were continued, with but few interruptions, up to September 17, when the weather broke up. The observed stars are numbered according to the list given in the *Monthly Notices*, November 1875, the only additional star employed being one of the $7\frac{1}{2}$ mag., referred to as *c* (see *Nature*, December 14, 1876). The work is divided into four sections: the first relating to the adjustment of the Equatoreal; the second to the reduction of the observations; the third containing the observations themselves; and the last the determination of the Solar Parallax in accordance with the previous sections.

By applying the weights as originally determined, the value obtained for the Solar Parallax was $8''\cdot80$. But, dividing the observations into two classes—the first class containing those which were made with two comparison stars, and the second class those made with only one comparison star—it was found that the mean value of $(\text{error} \times \text{weight})^2$ was about five times as great for the second class as for the first. Consequently the weight due to the quality of the first method is to the weight due to the quality of the second method as 5 : 1 nearly; but this result depending very much on the observations made on one night, it was thought advisable to reduce the ratio, and the ratio adopted was 4 : 1; and multiplying accordingly the former weights of the first class by 4, the resulting Solar Parallax was

$$8''\cdot789,$$

with a probable error of $0''\cdot060$.

Dun Echt Observatory Publications, Vol. II. Mauritius Expedition, 1874. *Division I. Determination of the Solar Parallax by observations of the Minor Planet Juno* (4) *at Opposition, together with a description of the Heliometer used in the observations.* Pp. i. to xiv. and 1 to 212.

It is proposed to give in another volume full reports of the chronometric and telegraphic determinations of the longitude of Mauritius, together with the observations for latitude and time which were made during Lord Lindsay's stay in the island; and